



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Kenji NAKAI et al.

Group Art Unit: 1745 ✓

Application No.: 09/977,214

Examiner: J. Mercado

Filed: October 16, 2001

Docket No.: 110753

For: NON-AQUEOUS ELECTROLYTIC SOLUTION SECONDARY BATTERY

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the January 27, 2004 Office Action, reconsideration of the rejections is respectfully requested in light of the following remarks.

Claims 1-20 are pending.

Applicant's appreciate the courtesies shown to Applicants' representative by Examiner Mercado in the April 6, 2004 personal interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

Rejections Under 35 U.S.C. §103(a)

A. Ishizuka, Toshio and Ein-Eli

The Office Action rejects claims 1-8 and 10 under 35 U.S.C. §103(a) over U.S. Patent No. 6,019,802 to Ishizuka et al. ("Ishizuka") in view of JP 10-241685 to Toshio et al. ("Toshio") and U.S. Patent No. 5,962,166 to Ein-Eli et al. ("Ein-Eli"). Applicants respectfully traverse the rejection.

Claim 1 would not have been rendered obvious by Ishizuka, Toshio and Ein-Eli.

Claim 1 recites "[a] non-aqueous electrolytic solution secondary battery ... wherein the lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 5% or less on the basis of the lithium-manganese complex oxide in a range where an electrode potential to metal lithium is 4.8V or more ..."

Ishizuka, Toshio and Ein-Eli do not teach or suggest such a battery.

The Office Action asserts that Ishizuka describes a non-aqueous electrolytic solution secondary battery including many of the features of claim 1. The Office Action concedes, however, that Ishizuka does not disclose a battery in which a lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 5% or less on the basis of the lithium-manganese complex oxide in a range where an electrode potential to metal lithium is 4.8V or more. The Office asserts that this deficiency of Ishizuka is overcome by Toshio, which allegedly discloses a battery in which manganese elution does not occur, and Ein-Eli, which allegedly discloses a battery having an electrode potential of 4.7V to 5.1V. Notwithstanding these assertions, the cited references do not teach or suggest the battery of claim 1.

Neither Toshio nor Ein-Eli teach or suggest a battery in which a lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 5% or less on the basis of the lithium-manganese complex oxide in a range where an electrode potential to metal lithium is 4.8V or more. Toshio discloses a battery in which elution does not occur and Ein-Eli discloses a battery that operates at high voltage. However, neither of these references disclose a battery in which elution is 5% or less where the electrode potential is 4.8V or more. It is evident from the instant specification that the elution and electrode potential features are not separate elements, but rather related. See Instant Specification, p. 16, ll. 7-10. Absent a teaching of a battery in which elution is 5% or

less where the electrode potential is 4.8V or more, none of the references, either alone or in combination provides the invention of claim 1. It is improper to selectively pick and choose limitations from disparate references in order to make a case of obviousness.

Moreover, the claimed invention provides unexpected results over batteries such as disclosed in the cited references. For example, it is plain from the instant specification that batteries in which the manganese elution is greater than 5% provide inferior results relative to batteries in which the elution amount is less than 5%. Table 2 at page 28 of the instant specification shows that batteries in which manganese elution is greater than 5% have much higher surface temperatures and much poorer appearance when in use -- batteries according to the instant invention are safer than prior art batteries. As the cited references do not teach or suggest the invention of claim 1 and the invention of claim 1 provides unexpected, superior results relative to the closest cited reference, the cited references do not teach or suggest the invention of claim 1.

Claim 1 would not have been rendered obvious by Ishizuka in view of Toshio and Ein-Eli. Claims 2-8 and 10 depend from claim 1 and thus also would not have been rendered obvious by the cited references. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Nakai, Toshio and Ein-Eli

The Office Action rejects claims 11-14 and 16-20 under 35 U.S.C. §103(a) over U.S. Patent No. 5,962,167 to Nakai et al. ("Nakai") in view of Toshio and Ein-Eli. Applicants respectfully traverse the rejection.

Claim 11 would not have been rendered obvious by Nakai, Toshio and Ein-Eli. Claim 11 recites "[a] non-aqueous electrolytic solution secondary battery ... wherein the lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 7% or less on the basis of the lithium-manganese complex

oxide in a range where an electrode potential to metal lithium is 4.8V or more." Nakai, Toshio and Ein-Eli do not teach or suggest such a battery.

The Office Action asserts that Nakai describes a non-aqueous electrolytic solution secondary battery including many of the features of claim 1. The Office Action concedes, however, that Nakai does not disclose a battery in which a lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 7% or less on the basis of the lithium-manganese complex oxide in a range where an electrode potential to metal lithium is 4.8V or more. The Office Asserts that this deficiency of Ishizuka is overcome by Toshio, which allegedly discloses a battery in which manganese elution does not occur, and Ein-Eli, which allegedly discloses a battery having an electrode potential of 4.7V to 5.1V. Notwithstanding these assertions, the cited references do not teach or suggest the battery of claim 1.

As discussed above, neither Toshio nor Ein-Eli teach or suggest a battery in which a lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 7% or less on the basis of the lithium-manganese complex oxide in a range where an electrode potential to metal lithium is 4.8V or more. Toshio discloses a battery in which elution does not occur and Ein-Eli discloses a battery that operates at high voltage. However, neither of these references disclose a battery in which elution is 7% or less where the electrode potential is 4.8V or more. Absent such a teaching, none of the references, either alone or in combination provides the invention of claim 1 and a *prima facie* case of obviousness has not been made. Moreover, as discussed above, the claimed invention provides unexpected results and is safer than batteries such as disclosed in the cited references.

Claim 11 would not have been rendered obvious by Nakai in view of Toshio and Ein-Eli. Claims 12-14 and 16-20 depend from claim 11 and thus also would not have been

rendered obvious by the cited references. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Michiko, Ishizuka, Nakai, Toshio and Ein-Eli

The Office Action rejects claims 1-20 under 35 U.S.C. §103(a) over JP 2001-01573 to Michiko et al. ("Michiko") in view of Ishizuka or Nakai, and Toshio and Ein-Eli. Applicants respectfully traverse the rejection.

Claim 11 would not have been rendered obvious by Michiko, Ishizuka, Nakai, Toshio and Ein-Eli. Pertinent portions of claims 1 and 11 are set forth above. Michiko, Ishizuka, Nakai, Toshio and Ein-Eli do not teach or suggest such a battery.

The Office Action asserts that Michiko, Ishizuka and Nakai describe a non-aqueous electrolytic solution secondary battery including many of the features of claim 1. As with the previous rejections, the Office Action concedes that Michiko, Ishizuka and Nakai fail to disclose a battery in which a lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 7% or less on the basis of the lithium-manganese complex oxide in a range where an electrode potential to metal lithium is 4.8V or more. As discussed above, neither of the secondary references Toshio and Ein-Eli teach or suggest a battery in which a lithium-manganese complex oxide is set such that an amount of elution of manganese into the non-aqueous electrolytic solution is 7% or less on the basis of the lithium-manganese complex oxide in a range where an electrode potential to metal lithium is 4.8V or more. Absent such a teaching, none of the references, either alone or in combination provides the invention of claim 1 and a *prima facie* case of obviousness has not been made. Moreover, as discussed above, the claimed invention provides unexpected results and are safer than batteries as disclosed in the cited references.

Claims 1 and 11 would not have been rendered obvious by Michiko in view of Ishizuka or Nakai, and Toshio and Ein-Eli. Claims 2-10 and 12-20 depend from claims 1 and

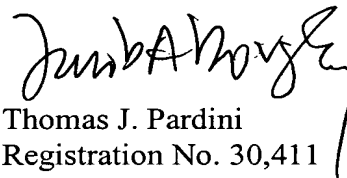
11 respectively, and thus also would not have been rendered obvious by the cited references. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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Date: April 6, 2004

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